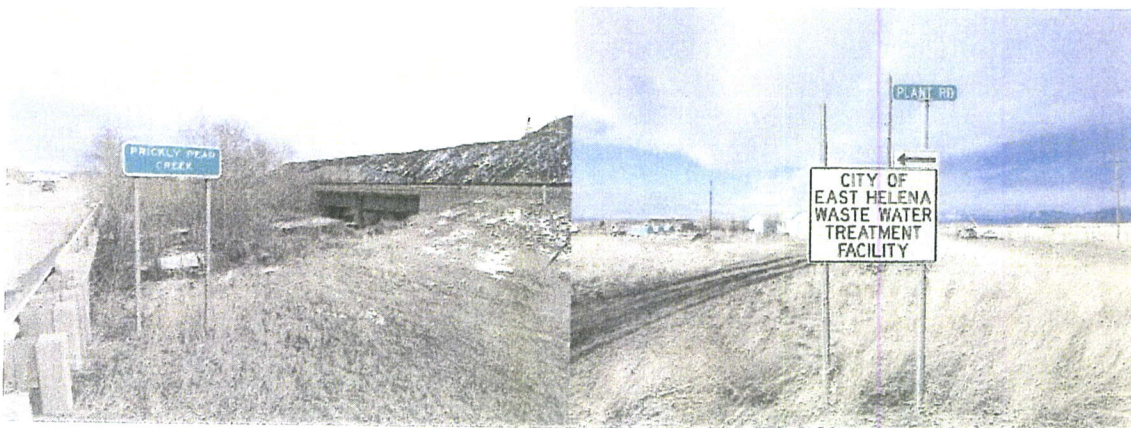




## East Helena Sewer Rate Increases 2011 & 2012

By Luke Serati  
March 2, 2012





## Introduction

This paper is to relay information concerning the 2011 and upcoming 2012 rate increases associated with the East Helena sewer system mandated upgrades.

The State of Montana Department Of Environmental Quality (MTDEQ) increases its standards for all Wastewater Treatment Plants discharging into any state water on a regular basis.

## 2003 Plant Upgrade

East Helena had just finished building a new plant in 2003 that had caused a rate increase to about \$39 per month and long-term debt of \$3,482,460.00.

This debt will not be eliminated for another 10 years.

Extra capacity was built into the plant under the pretext, orchestrated by MTDEQ, that as the town grew and services were added the rates would decrease.



During the entire design-build period of the plant not a word was mentioned of these new regulations and the subsequent rate increase needed to comply with the newest standards.

## 2012 Plant Upgrade

In East Helena the cost to meet these new requirements is about \$4.4 million in capital expenditures plus \$98,000.00 per year in operational expenses (labor, chemicals, power, lights and repairs), engineer's estimates are not yet final.

Various government entities have ponied up some significant sums of money for this latest upgrade, including \$1,500,000.00 from Rural Development, \$750,000.00 from Treasure State Endowment Fund, and \$100,000.00 DNRC RRGL.

Yet this still leaves \$5,610,000.00 to be financed after consolidating with the previous debt associated with the sewer plant.

In July of 2011 residents of East Helena started paying an additional \$90.00 per year on their sewer bill and another increase is required in 2012.

This next increase will raise the rates to between \$50.00 and \$60.00 per month per user depending on a loan length of from 30 to 40 years.

Everybody wants clean water and the people in East Helena care about the quality and function of Prickly Pear Creek as much as anyone. This is not the point. The point is what do you get for \$4.4 million?

### **Benefits???**

The most expensive part of this upgrade is removing the metals, copper and lead entering Prickly Pear Creek from the East Helena Waste Water Treatment Plant (WWTP). Zinc is not as much of a problem in East Helena as elsewhere.

The small amount of metal removed (about 17 parts per billion for copper and 10 parts per billion for lead) requires a new state of the art addition to the WWTP.



The total amount of copper removed per year will be between 9 and 12 pounds. The total lead removed will be about half that amount.

Meanwhile more than 7 tons of copper and 3 tons of lead per year are flowing into Lake Helena via Prickly Pear Creek due to runoff.



East Helena Sewer Rate Increases – 2011 & 2012  
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These are EPA's own numbers taken from their study dated August 31, 2006. Framework Water Quality Restoration Plan and Total Maximum Daily Loads (TMDLs) for the Lake Helena Watershed Planning Area.

Taken from this document, in Appendix A on page A-73, the line "NPDES Permitting" in the graphs below includes ALL Waste Water Treatment Plants on Prickly Pear Creek.

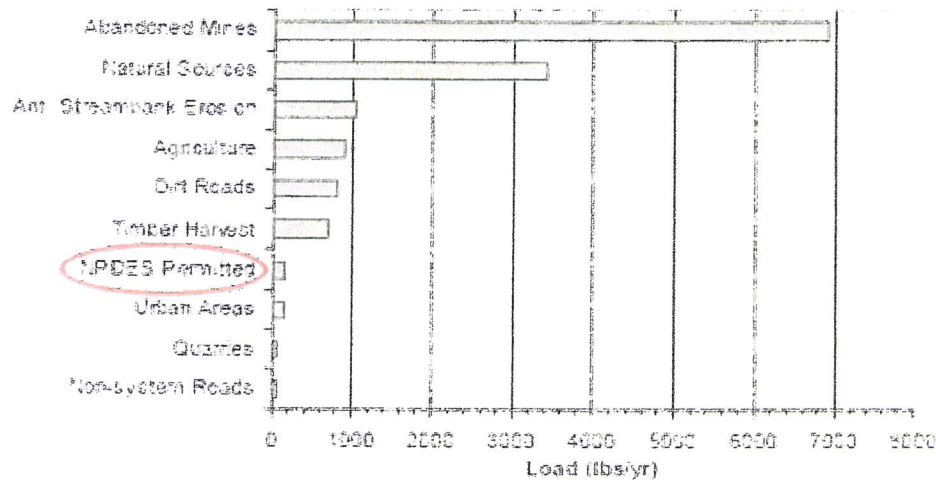


Figure 8-3. Sources of copper loadings to Prickly Pear Creek.

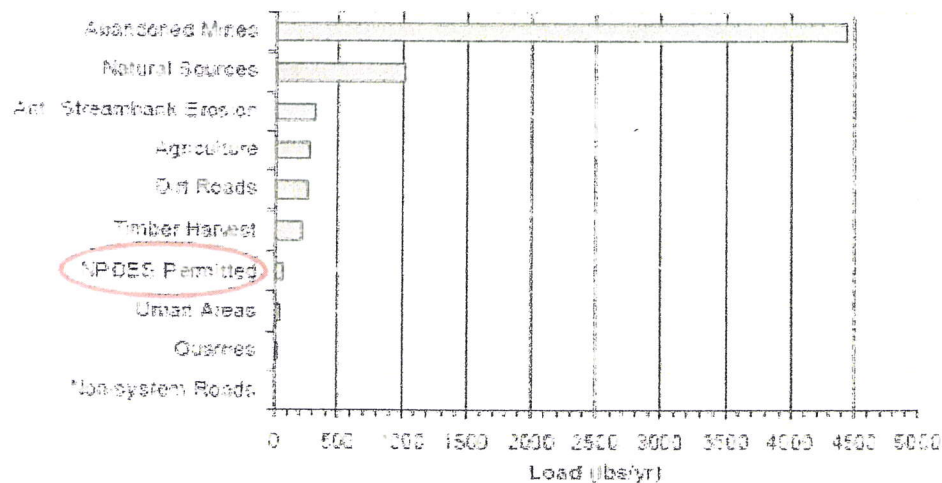


Figure 8-4. Sources of lead loadings to Prickly Pear Creek.

Even with the 7 tons of copper and 3 tons of lead due to runoff into Lake Helena per year Montana Fish Wildlife and Parks biologist Erik Roberts, who regularly samples fish in the lake, has found no problem as to their mortality or reproduction and are safe to eat.

Some of the best fishing in the Helena area is at the Causeway. This is where Lake Helena enters the Missouri.

Minute amounts of toxins are not necessarily toxic. The amounts of copper and lead required by MTDEQ (9 parts per billion for copper, 3 parts per billion for lead) are very hard to achieve, very expensive, and will have no appreciable benefit over the amount (about 26 parts per billion copper, 13 parts per billion lead) originally in the effluent.

This is evidenced by the Whole Effluent Toxicity (WET) tests.

These tests are designed by MTDEQ and conducted by independent laboratories as a requirement for operation of a Waste Water Treatment Plant.

In these WET tests, effluent and receiving water (Prickly Pear Creek) were mixed in concentrations of effluent/PPC: 100%/0%, 75%/25%, 50%/50%, 25%/75%, 0%/100%, and equal numbers of live specimens (minnows and small invertebrates) are placed in each of the concentrations.

At various time intervals, out to 96 hours, the numbers of alive and dead are tallied. In every instance the live specimens in the effluent equaled or exceeded that of the creek water.

Yes, fish and invertebrates do as good in the effluent as the creek water even at 100% concentrations of effluent.

Engineers, after extensive research, could find no single source or combination of events to explain the small amount of copper other than that it is caused by the erosion of the copper pipes in the supply system, and the amounts in the source water. As water passes through the pipes in homes a small amount of copper is worn off and enters the discharge.

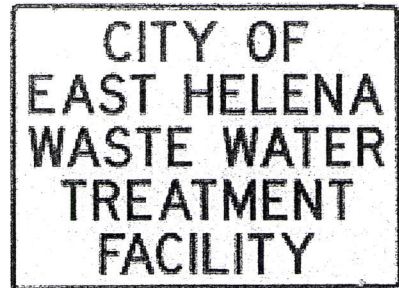


## **Just East Helena?**

This problem is not specific to East Helena.

Every city in Montana is going to be faced with these upgrades, with few exceptions.

MTDEQ maintains that 2% of the average gross income is not too much to pay for sewer.



Helena's preliminary estimate (rough guess) for upgrades to their WWTP is \$50 million. They are exploring all options, including legal.

## **The #1 Problem With Prickly Pear Creek: Dewatering**

The following is from the MTDEQ Statement of Basis for East Helena's WWTP permit.

East Helena currently discharges into Prickly Pear Creek approximately one mile downstream of the crossing at Wylie Drive.

This section of the creek is classified "I" as it does not fully support any one of its beneficial uses.

According to the Source Assessment of Lake Helena Watershed Planning Area, this stream segment experiences "severely depleted stream flows in summer".

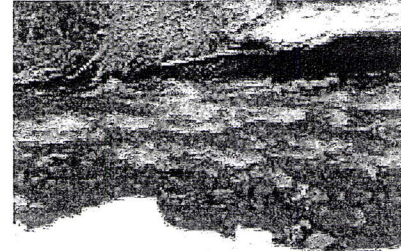
The stream was rated as nonfunctional with the most detrimental impact identified as stream dewatering and "source assessment features include a dry stream bed.

The Montana Fish Wildlife and Parks (MTFWP) website identifies this segment as an area of chronic dewatering in all years of assessment (1991, 1997, 2003, 2005).

## Solutions

The largest problem to aquatic life in this section of Prickly Pear Creek, no water, is also the easiest to solve. In fact, in recent years it has been solved.

The Clark Fork Coalition, and previously the Montana Water Trust, has been able to provide a continuous flow of water in creek through water swap agreements with various agriculturists.



These farmers leave water in the creek in exchange for water from the irrigation canal.

This water, out of the canal, has a cost and there is no guarantee the Clark Fork Coalition will be able to continue to find funding. Currently the cost is approximately \$30 thousand per year. This cost could be absorbed as part of a pollution swap. However, the MTDEQ will not allow this for metals even though these small amounts may not be toxic, as shown by the WET testing.

There are farmers and others willing to accept effluent water for irrigation. If this effluent water were to be land applied instead of dumped directly into the creek this would be a real and significant reduction in pollution.

A drawback to this is MTDEQ allows land application only during the growing season, but allocates no credit for this reduction in pollution, (in parts per billion) the remainder of the year.

This overall reduction will be in excess of 25% of the total pollution and should be allowed some credit. Without this credit a huge storage facility is required to make land application work.

East Helena previously had a 1400-foot mixing zone. The effluent water was allowed to mix with the creek before being tested. Even though the effluent has been shown to be non-toxic for at least 96 hours at 100% concentrations (WET tests), MTDEQ seems unwilling to allow a mixing zone.



A mixing zone should be reinstated.

Copper is hardness based. Currently, the MTDEQ uses the 25<sup>th</sup> percentile value for the upstream total hardness data set. This 25<sup>th</sup> percentile low hardness value is used year-round.

Alternatively, the copper content of the effluent and hardness of the receiving water should be taken and applied at the same time.

Cleaning up a mine site upstream from East Helena would be another alternative. This would probably remove the most metals per dollar.

### **Additional Information**

The human health standard for copper is 1300 parts per billion or about 100 times less restrictive than aquatic life standards. For lead this standard is 15 parts per billion.

Prickly Pear Creek itself will not meet these aquatic life standards. (Source: Statement of Basis Table 10)

East Helena's permitted values of these metals will be less than the concentrations in Prickly Pear Creek, on average. (Source: Statement of basis Table 5)

The Montana Water Quality Act allows for effluent trading for nutrients, not for metals.

EPA has approved an alternative testing method referred to as the Biotic Ligand Model. This monitoring procedure could reduce compliance costs while effectively protecting water quality.

MTDEQ has not yet accepted the model. (MLCT/MTDEQ Quarterly Meeting 11/16/2011)



## Conclusion

MTDEQ has threatened East Helena with fines of \$10 thousand per day for noncompliance.

East Helena is a small town with a basically volunteer City Council.

It can ill afford a protracted legal battle with the fulltime lawyers of the MTDEQ.

These factors have severely influenced decision making and judgment.

\$4.4 million is too much to pay to remove 12 pounds of copper and 6 pounds of lead.

There are less expensive and more effective ways to reduce the pollution entering Prickly Pear Creek. These alternatives should be considered.

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March 2012

